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SOIL CONSERVATION

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SOIL CONSERVATION •

APRIL 1955

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ADMINISTRATOR, SOIL CONSERVATION SERVICE

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★ THIS MONTH ★

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WELLINGTON BRINK
Editor

SOIL CONSERVATION is published by direction of the Secretary of Agriculture as administrative information required for proper transaction of the public business. The printing of this publication has been approved by the Bureau of the Budget, July 29, 1954. SOIL CONSERVATION supplies information for workers of the Department of Agriculture and others engaged in soil conservation.

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SERICEA SAVED SITUATION.—B. D. Sheppard, Route 1, Liberty, S. C. has established about 6 acres of sericea lespedeza on 4 water-management areas during the past 2 years as a part of his soil conservation plan with the Pickens Soil Conservation District. Recently, while helping the SCS technician survey terrace lines to drain water into these areas, Sheppard remarked, "The sericea hay which I have cut from these areas has enabled me to feed my six cows. If it had not been for the sericea I would have been forced to sell them." Despite the dry weather, Sheppard secured two cuttings of hay, averaging 2½ tons from this stand of sericea last summer.

PAN AMERICAN DAY.—Sixty-five years ago the First International Conference of American States met in Washington and gave substance to Simon Bolivar's dream of a league of American nations. The International Union of American Republics which this conference created in 1890 evolved through the years, and with different names, into the Organization of American States, whose 65th birthday we will celebrate this coming Pan American Day—April 14, 1955.

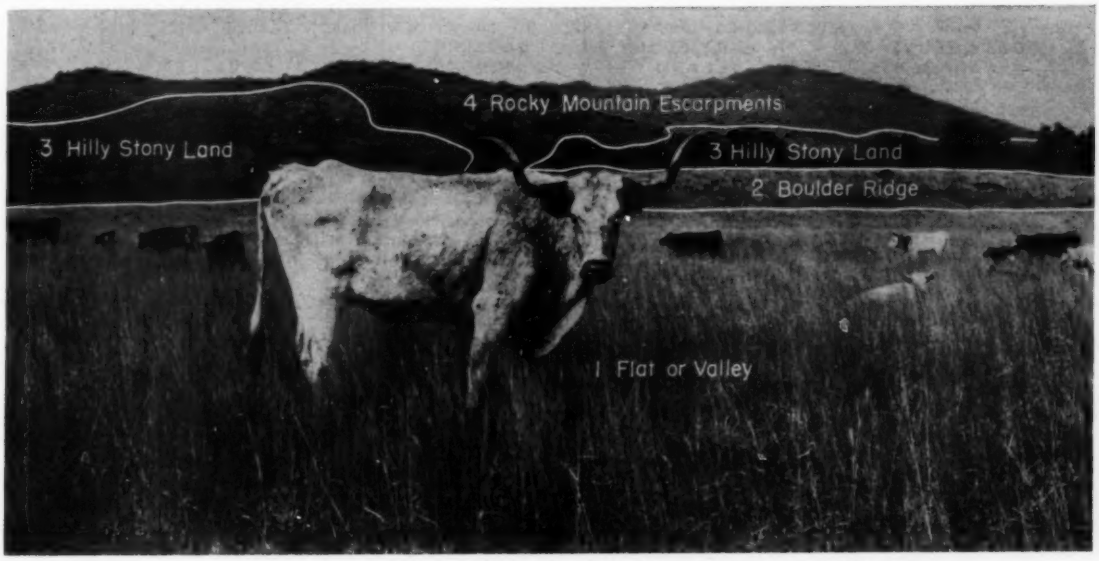
Editors are invited to reprint material originating in this magazine.

FRONT COVER.—It is in the spirit of Easter that we depart from winter snow scenes and present John Owen Huffman and his pet lamb this month. The photograph was made at Bridgewater, Va., by a talented member of the photographic pool of the Department of Agriculture.

All orders go to the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

Here Still is a Land Primeval

On the ancient mountain range of a vast wildlife refuge grow the lush grasses and noble animals that once characterized the romantic West. This is Nature's own scenic classroom for historians and conservationists.



Four range sites in excellent condition class, Wichita Mountains Wildlife Refuge.

By B. W. ALLRED

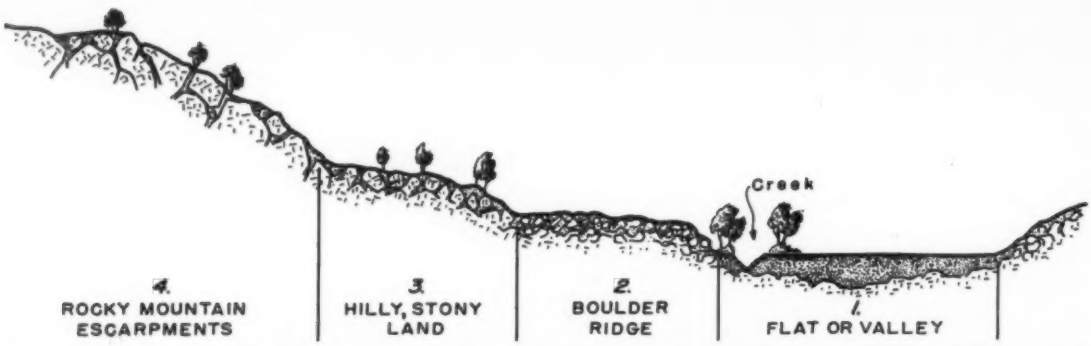
THE Wichita Mountains Wildlife Refuge is an outdoor conservatory of native American wild animals, longhorns, and bluestem grasses, that is being used for maximum public benefit. The area is small considering the good it yields over a vast surrounding territory. So little of our land has either its original fertility or plant cover left that we need places like this to give us a true perspective of the goal of nature and the potential yielding power of land.

The refuge lies in southwestern Oklahoma, north of Cache, immediately west of the Fort Sill target range and northwest of Lawton. In describing this area, Ernest J. Greenwalt, refuge supervisor, says:

"Its oak-covered granitic hills, interspersed with parks of bluestem grasslands and studded with a score of lakes, encompass 59,099 acres of the ancient Wichita Mountain Range. It was the ancestral home of the Wichita Indian tribe; Spanish adventurers and miners are said to have explored its rocky ridges and crevices for precious metals; and tales of buried treasure and bandit loot in its borders still persist. Generals McClelland, Scott and Sheridan of Civil War fame campaigned in the Wichita Mountains against roving bands of Kiowa and Comanche Indians; and Quanah Parker, last chief of the Comanches, made the mountains his home.

"In 1901 when the Apache, Kiowa and Comanche reservation was thrown open to settlement the area now comprising the Wichita Mountains Wildlife Refuge was set aside by

Note.—The author is soil conservationist, farm and ranch planning branch, Soil Conservation Service, Washington, D. C.



When each site is in excellent range condition, it requires about 6 to 8 acres of flat or valley land for a cow to thrive. Some 10 to 12 acres are required on the boulder ridge site. Twenty to 25 acres are needed on hilly, stony land. And 40 to 50 acres per animal unit yearlong must be allowed on the rocky mountain escarpment. Therefore, land buyers can afford to pay 30 percent more for the flats or valleys than for boulder ridgeland, for example.

Sites do not always lie in the exact order shown here. Their positions vary, and the rocky mountain escarpments or the hilly, stony land may be in contact with the flats.

presidential proclamation of President Theodore Roosevelt as a national forest. In 1935 administration was transferred to what is now the Fish and Wildlife Service, Department of Interior."

The Wichita Mountains represent the eroded igneous roots of a former extensive mountain range that was originally much higher than that at present. These mountains appear to have arisen during that prominent mountain-making epoch that began with the uplifting of the Ouachita Highlands on the east and subsequent development of the Arbuckle Mountains, then the Wichitas, and finally the Amarillo Mountains to the west which completed the final phase of the crustal displacement. The Amarillo Mountains are still buried under several hundred feet of sedimentary deposits. They are about 500 feet above sea level and are the lowest of this series of related mountain developments.

Visitors to the refuge find the Texas longhorn cattle one of the features of most interest. These Wichita Mountain longhorns are the lineal descendents of Spanish cattle brought into Mexico in 1521 by Gregario de Villalobos, the first to import cattle to the New World.

The first Texas longhorn cows mothered the foundling range cattle industry. Texas grassland was the great nursery from whence came the bulls and she-stock that founded the Western cattle kingdoms. It has been estimated that 10 million longhorns were drained off the Texas ranges and driven up the north trails from 1866 to 1890. In the Northern Plains they fattened on the fresh deep grass left by the vanishing buffalo and other big game. Then the transcontinental railroad crossed the cattle trail. Feeder lines tapped the producing areas. The northward drive ended. Livestock moved by train with greater speed, safety and economy.

Through the years the longhorn blood became diluted with English and Brahman cattle; the physical signs of the longhorn ancestor are a rarity in today's stock. But the longhorn, nevertheless, has left an indelible stamp on the economy and culture of the nation.

The lasting fight to subjugate the cranky, armored longhorn critters made heroes out of cowboys. The cowpuncher for half a century and more has enjoyed one of the most romantic reputations in the world. A tamer breed of cattle would never have given rise to the stockhand's glory. A more domestic spirit than the usual cowhand possessed could never have battled successfully with the longhorn, though. Just the telling of the cowboy's story—in song and story, art and movie—now exceeds in value, each year, the sale value of the trail herds delivered from Texas to Montana in the best year the longhorn ever enjoyed.

The slab-sided longhorn was well gaited for quick self-delivery from Texas breeding ground to northern grass. He was slow maturing and when slaughtered he was still ornery enough to turn off a minimum of the choicer cuts. Stockmen soon found that the English bred bulls crossed with longhorn cows advanced maturity and beefiness per animal. By early 1900 the longhorn blood was nearly cancelled out by intensive crossbreeding.

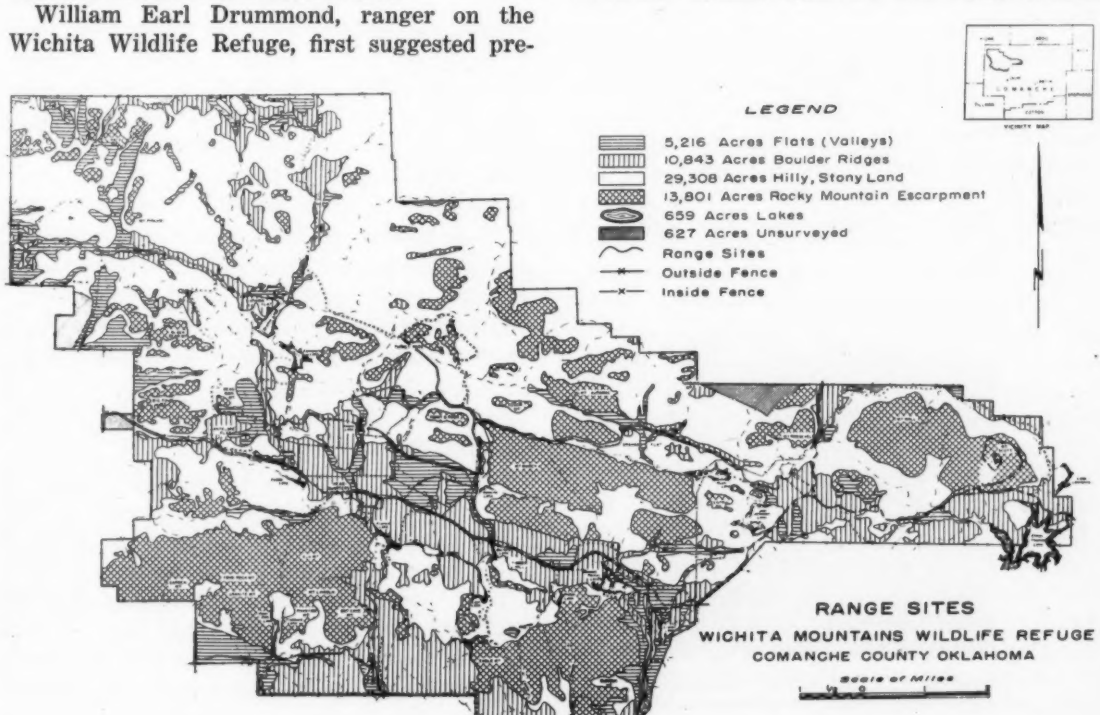
Longhorns and buffalo were predestined for extinction by different methods—one by the breeders art, the other by hunting. Both animals are intensely American. It would be hard to say which is the more so. It's fitting that in at least one place the two are preserved together. The United States is indebted to a few far-seeing and philanthropic men for perpetuating a fragment of these colorful animals before they forever became extinct. A herd of 20 cows, 3 bulls, 3 steers and 4 calves was gathered from many sources and delivered to the Wichita Mountains Wildlife Refuge, north of Cache, Okla., in August 1927. Since then the herd has been increased to 289.

William Earl Drummond, ranger on the Wichita Wildlife Refuge, first suggested preserving the Texas longhorn to his old friends, Will C. Barnes and John H. Hatton of the Forest Service. The latter two tried for 10 years before they got the money to assemble the small longhorn herd that finally was unloaded at the Cache railhead. Senator John B. Kendrick, of Wyoming, a former Texas cattleman, had heard their pleas and persuaded Congress to buy the cattle.

Barnes and Hatton looked at more than 30,000 head of cattle on a 5,000-mile trip along the thorny thickets of the Rio Grande and the Texas Gulf Coast salt marshes and backwaters before they found the individuals they figured qualified for foundation stock.

In 1927, when the longhorns were brought to the refuge, there were a good many bison, many elk and deer, wild turkey and numerous small native birds and animals.

Today, according to Ernest Greenwalt, there are 985 buffalo; 293 Texas longhorns; 1,100 deer, 300 elk, 20 antelope, and about 300 turkeys on the refuge. The smaller native animals are gray foxes, bobcats, coyotes, racoons, skunks, squirrels and many others.



The refuge supports the equivalent of over 1,200 animal units of grazing each year in big game and longhorns alone. That's about 50 acres for a grown cow per year. More than 70 percent of the refuge is rocky, hilly land, inherently low in grazing capacity. The rest is highly productive bluestem range.

Even though the range condition of the refuge was considerably higher than that of the surrounding country, Greenwalt was interested in improving it. The Wichita Wildlife Refuge began cooperating with the Comanche County Soil Conservation District, to the advantage of both.

Since the refuge had such unequaled resources for specialized training, the Soil Conservation Service was granted permission to use the area for training rangemen in Oklahoma and from adjoining States. As part of the range training program a survey of range sites and conditions was made and used as the basis for planning the conservation program on the refuge. The survey provided information on soil, vegetation, water, roads, trails, fences and other items required for sound conservation planning.

Grading ranges according to site variations and range conditions helps landowners tell how good a range is and how much better it may become under correct treatment of sites in line with their potential to produce forage and protect soil. The picture with the white longhorn in foreground illustrates the pattern of

Bull elk with full rack of horns, on excellent-condition bluestem on valley site.

range sites on one area in the Wichita Mountains Wildlife Refuge. It should be considered in connection with the diagramatic profile of the sites on the same refuge.

Range sites were named and vegetation and soil units listed for each. Site names used for the Wichita Mountains Wildlife Refuge were the ones used by the refuge personnel. Four range sites were delineated and described as follows:

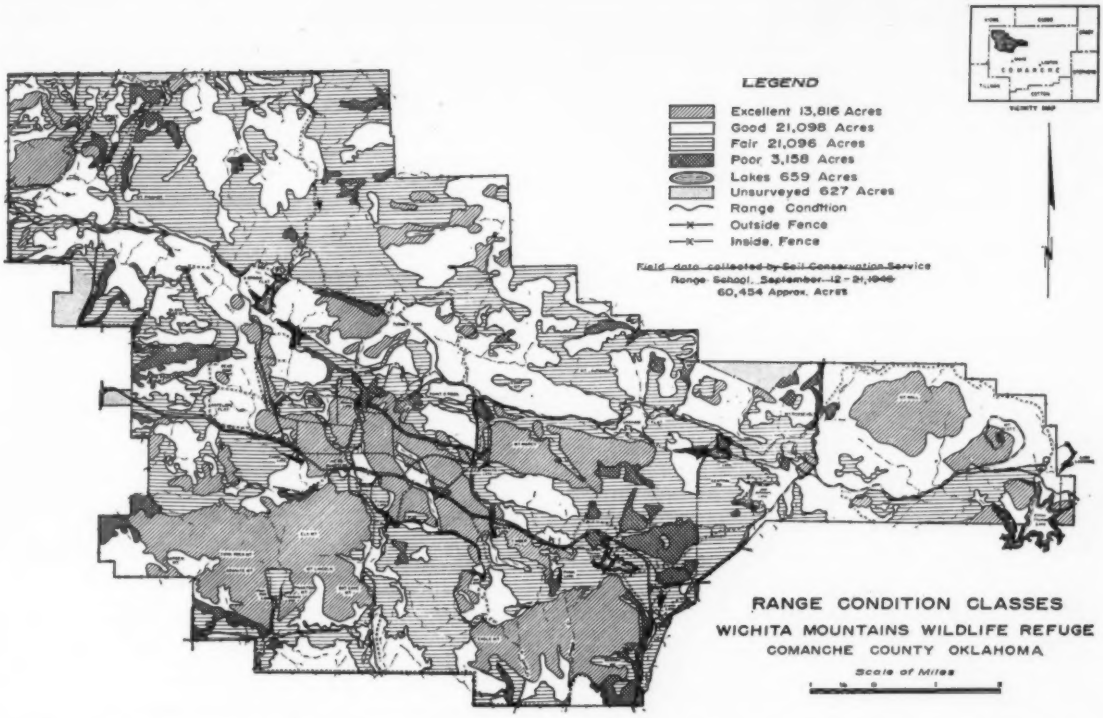
Site 1, Flats (valleys) is characterized by smooth, nearly level productive valley-fill material. The textures included are both fine and medium, largely silty clay loams and silt loams. These soils are productive, alluvial, and of valley-fill origin developed from igneous materials.

This site generally has been grazed the most of all. Animals concentrate here and all of it is readily accessible to livestock. Also, most of this site is being, or has been, heavily used by prairie dogs. It is covered with an over-story of scattered mesquite trees in the higher flats and post-climax oak and elm trees along the creeks. The understory of grass and forbs varies, and includes such plants as little bluestem, sideoats grama, hairy grama, big bluestem, Indiangrass, switchgrass, Canada wildrye, and legumes on spots in better range condition. Ragweed, annual threeawn, blue grama, buffalograss, red threeawn, and gummy lovegrass are common on ranges in poor condition.

Most of this site is in fair range condition, considerable is in poor condition, and small amounts are in good or excellent condition.

Site 2, Boulder Ridge is characterized by very shallow stony soils that occur on narrow ridges or hogbacks. The soils are of granitic origin and largely sedimentary on these sites. Natural productivity is relatively high.

The vegetation is largely open grassland with such plants as little bluestem, sideoats grama, hairy grama, and big bluestem predominating with lesser amounts of Indiangrass, switchgrass, Canada wildrye, blue grama, legumes and asters. However, parts of this site are covered with brushy oak vegetation, principally blackjack and post oak with a thin understory of the grasses just named.



Site 3, Hilly, Stony Land, is characterized by rather steep, stony land of gentle to moderate slope. The soils are granitic in origin, and large boulders up to 6 feet in diameter are common. Approximately half of the refuge is of this site. The potential productivity of this site is low.

Range condition is mostly fair to good, due to relative inaccessibility. Small amounts are in poor condition. Some is excellent. The vegetation is dominated by little bluestem and hairy grama with lesser amounts of sideoats grama, blue grama, fall witchgrass, hairy goldenaster, goatweed, and fineleaved thelesperma. Almost three-fourths of this site has a thin to heavy overstory of post oak, blackjack, and redcedar.

Site 4, Rocky Mountains Escarpment, is characterized by rough, stony land, rock ledges, and slopes that are steep to precipitous. Elk Mountain and Mt. Scott are typical of this site with very thin soils and a high percentage of bare rock.

The potential productivity of such land is low, but because these areas are not readily accessible to livestock use, many are in good to excellent range condition.

The principal vegetation is little bluestem and hairy grama, with small amounts of fall witchgrass, sideoats grama, big bluestem, post oak, blackjack oak, and redcedar.

Ranges were graded into distinctive sites to help determine their potential values. Each one has a slighly different maximum or climax plant community, partly in terms of kinds of plants but largely in terms of productivity. On the refuge only the boulder ridge site can be classed as mature or climax site. Here the soil and vegetation are in equilibrium with the climate. The flat or valley site has superior water relationships and hence is better than the climax site, as is denoted by the greater abundance of the tall grasses and productivity. Number 3 and 4 sites are on steep rocky land that is basically inferior to the boulder ridge site. However, sites 1, 3, and 4 are in reality stable sites, and hence each also has its potential or maximum plant community which is to be called climax for the purpose of classifying ranges according to condition. On sites that

are properly grazed, plants are maintained in excellent condition, but under improper grazing they degrade to low poor condition, with the rate of degeneration in ratio with the intensity of overuse. Between the top of excellent condition and low of poor, or low annual weed stage, are the intermediate grades of good and fair. Each of these is typified by a certain plant community which indicates its particular rank in the plant succession scale. See the accompanying table.

The climax plants for each site were first determined from relict areas and well managed ranges. The climax then became the base point from which range-condition classes were keyed. Once the climax was determined, the classification of the four range conditions was developed by properly cataloging climax plants that decrease or increase and those that invade. Several classes could have been segregated at any point along the plant succession scale. However, for simplicity in classifying range conditions, the plant succession scale was graduated into four equal divisions as follows:

Excellent—75 to 100% of plants are climax species.

Good—50 to 75% of plants are climax species.

Fair—25 to 50% of plants are climax species.

Poor—0 to 25% of plants are climax species.

In classifying the range-condition classes of each site, the plant composition was deter-

Key climax plants: by sites, and other plants that invade with overgrazing

Climax plants	Site 1	Site 2	Site 3	Site 4	Invading plants
Little bluestem	....	....	....	....	Annuals
Big bluestem	....	....	....	....	Mesquite
Switchgrass	....	....	....	0	Silver bluestem
Perennial sunflowers	....	....	....	....	Texas greenthread
Sideoats grama	10	10	15	....	Red threeawn
Meadow tall dropseed	10	5	0	0	Windmillgrass
Buffalograss	Inv.	Inv.	5	5	Tumblegrass
Hairy grama	Inv.	Inv.	5	10	Ironweed
Blue grama	5	Inv.	10	....	Western ragweed
Purple threeawn	Inv.	Inv.	5	10	Prairie coneflower
Woody vegetation except mesquite	5	 5	 10	 20	

Range conditions	Safe stocking rate; acres per animal unit				Percent original vegetation
	Site 1	Site 2	Site 3	Site 4	
Excellent	6-8	9-12	25-30	35-40	75 to 100
Good	10-12	12-16	32-40	36-54	50 to 75
Fair	16-18	18-25	50-60	70-80	25 to 50
Poor	25-30	40-50	100	140-160	0 to 25

Legend:

0 = None or only traces in climax (all allowed).

... = Decreaser; unlimited in climax.

5-10 = Plant is an increaser and the number shown in each site gives the percent found in the climax; more than the amounts indicated do not count in the climax.

Inv. = Plant invader on this site.

mined. The percent of key climax and invading plants was tabulated as indicated in our table. The pattern of land sites and range condition classes for the Wichita Mountains Wildlife Refuge are shown on the two maps. Excellent, good, fair and poor range condition for a valley site are shown in four photographs.

Valley site, fair range condition class. Grazing capacity 15 to 17 acres per animal unit yearlong. Climax plants make up 25 to 50 percent of the vegetation.

The refuge's largest single conservation need is grassland conservation because most of the land is covered with native grass. Refuge personnel are accomplishing this need through proper stocking of game animals and longhorns and fencing and salting for better distribution plus fire prevention and control. Annual

Valley site, excellent range condition class. Grazing capacity 6 to 8 acres per animal unit yearlong. Climax plants make up 75 to 100 percent of the vegetation.

sales of game and cattle are made to help keep grazing animals in balance with yearly grass production. Ranges that were in poor and fair condition have been improving for 20 years.

There are some pesky types of erosion prob-

Valley site, poor range condition class. Grazing capacity over 30 acres per animal unit yearlong. Climax plants make up 0 to 25 percent of the vegetation.

lems to which the men have to be constantly alert. For example, there are many miles of dirt and hard surfaced roads which collect water to form gullies. Much of the muddy water that drains from road ditches originates on steep, unprotected road cuts. A large acre-

Valley site, good range condition class. Grazing capacity 10 to 12 acres per animal unit yearlong. Climax plants make up 50 to 75 percent of the vegetation.

age in camp grounds and parking lots is kept bare by shoe and tire wear. The packed soil sheds rainwater, and erosion becomes a serious problem.

There has been considerable success in starting native grass to growing after planing down the steeper road and gully banks and covering bare slopes with seed hay. Logs for contour berms are used to control erosion on camp sites; bermudagrass sod held in place in sacks grows quickly and converts gully bottoms into sod flumes that carry runoff with minimum destruction. Patching breaks is a continual job, but progress is being made. Eighteen hundred plants of multiflora rose have been planted for wildlife cover.

(Continued on page 216)

Many Groups Make District Run

By HUGH F. EAMES

SMOOTH running, sure-fire soil conservation districts aren't created overnight. It takes years of hard, steady effort under positive leadership to bring a soil conservation district to the point where it consistently accomplishes its mission.

Along the shores of Lake Ontario, in western New York State, Wayne County Soil Conservation District stands out in the midst of a highly diversified agriculture. There it demonstrates, perhaps more than any of the State's other districts, just how steadily mounting results have rolled in from painstaking and thorough early spadework.

Preliminary work began in 1942 in discussions at Grange, Farm Bureau and other farm organization meetings. Out of information reported back to farm organizations and the county board of supervisors, the Grange, and the Farm Bureau requested the supervisors to declare a district. It was done by almost unanimous vote, and with this action came a county appropriation of $600 to help the new organization get started. This positive initial attitude was a powerful factor in getting the district off to a sound start, and continuation of this policy has been one of the principal factors in its constant success.

J. D. Ameele, East Williamson, representing Farm Bureau, was the first chairman. Other members of the district board of directors were: Walter E. Benning, Clyde, representing the Grange; Harry Walters, Newark, at-large; Wilbur Palmer, Ontario, and Ralph Wilkerson, Wolcott.

In the years that have followed never less than 100, and as many as 282 requests for assistance have been received annually.

As the work spreads out "Jake" Ameele comments that "It looks like we have a busy 10 years' work ahead. We've come a lot further and faster than we had expected."

Through the years Wayne County Soil Conservation District has always had the help of

Some of Wayne's leaders in soil conservation: Sitting—J. D. Ameele, Walter E. Benning, and Leon Van Quekelberg. Standing—Sidney C. Lookup, Harry S. Sergeant, and the technician, Richard C. Saunders.

every Wayne organization that could assist in any way—the county board of supervisors, the Farm and Home Bureau and 4–H Clubs, the Grange, the Extension Service through its county agents, the Wayne County Bankers Association, service clubs, town and county highway departments, seed fertilizer and farm machinery dealers, contractors, churches, schools, newspapers, radio stations and theatres, organizations of sportsmen, vo-ag teachers and pupils, GI farm training groups, and railroads.

Last year the members of the county board of supervisors got a "once in a lifetime" thrill when an organization came in and asked for *less* appropriation. It was the Wayne County Soil Conservation District, which thought it could get along with $1,300 instead of $2,300 during the next year. The supervisors obliged, but declared "You can have it back, if you need it."

Cooperation of town and county highway

departments is represented in the $5,122 earnings paid to 7 towns in 1944–52 for use of equipment. These extra earnings have helped taxpayers buy better equipment for their road work.

From the state, Wayne County Soil Conservation District had the help of the State Soil Conservation Committee, the state departments of conservation, highways and public works, and the State College of Agriculture.

The Federal government provided cooperation of the Soil Conservation Service, the Agricultural Conservation Program, NFLA's Production Credit Association, and Farmers' Home Administration.

It is this kind of straight-across-the-boards cooperation with Wayne County Soil Conservation District that keeps up a steady flow of new applicants for assistance.

One young Wayne farmer recently took on a $15,000 debt when he launched a land improvement program. He's confident that there is a real future for him in Wayne agriculture and rural life; that he will reach his goal in a few years. It's the same goal that hundreds of other farmers, both old and young, are moving toward with confidence in a sound and well-supported program.

SOCIETY HONORS TWO.—The Society of American Foresters has presented two of the profession's highest awards to William L. Hall and Tom Gill.

Hall was presented the Gifford Pinchot Medal, and Gill the Sir William Schlich Memorial Medal.

A segment of Jake Ameele's contour orchards. What looks like an auto tire is really the Williamson village reservoir. At left center the trees are in bloom.

Happy winners, at Wigwam. Holding signs denoting major specialties: A. C. Edwards, N. C.; T. T. Traywick, S. C.; Orrie Wilson, Nebr.; Berry Miller, Tex.; D. R. Springfield, Ark.; A. A. Welker, Ariz.; J. George Patch, Mont.; Melvin Lerfold, Wash.; and Leon Sheuerman, Kans.

Everyone W

Here is a nation-wide contes
ages farmers to in e th
ment by their distri board

By A. SETT

GOODYEAR will continue with its nation-wide awards program, starting May 1. 1955 and ending April 30, 1956.

Points are earned toward the annual Arizona trip by doing exactly the things that a soil conservation district board is supposed to do in its role of management.

Soil conservation leaders hold that even those who do not win a grand award will benefit greatly in terms of better-managed soil conservation districts.

This, in essence, is behind the continuing and mounting interest in this awards program, which is channeled through the national, state and local soil conservation district organization.

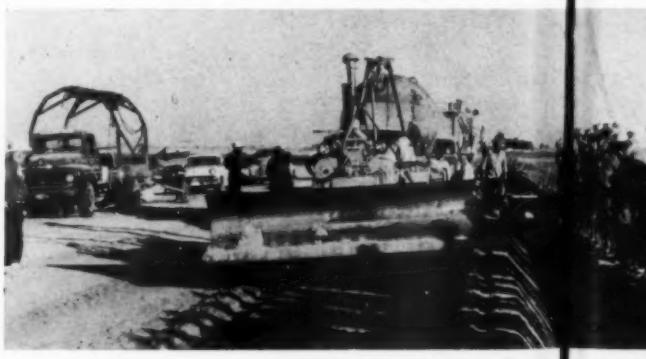
Every district is being invited to enter the current program, even though it has been a top winner in the past.

The Goodyear Tire and Rubber Company's interest in soil conservation district activities originally stemmed from participation in local soil conservation district projects by R. S. Wilson, vice president in charge of sales, after he purchased a farm in Michigan.

Through the combined efforts of the Soil Conservation Service, the Extension Service and other agencies, plus the committee formed by Goodyear, was evolved the first soil conservation awards program early in 1947.

Plaques are presented to boards placing first and second in each competing unit, plus framed certificates of merit to each of the board members. A framed certificate of merit also goes to each outstanding farmer-rancher cooperator as named in the score sheets which the districts send in to the judges.

Fast action here. A rode s one o



Guests take a look at cement gation di

Note.—The author is director, soil conservation award program, Goodyear Tire and Rubber Company, Akron, Ohio.

yone Wins!

n wide contest which encour- to in e the best manage- distri boards of supervisors.

By A. SETTLE

Eating in the open was one of the thrills enjoyed by victors, December 1954. Big hats and colorful shirts, western belts and levis, were worn as part of their reward for doing topnotch managing of their soil conservation districts. These men came from all parts of the Nation.

A rode s one of the exciting events.

ement tation ditching on company farm.

The grand award, of course, is a week's vacation at Goodyear's Farms, Litchfield Park, Ariz., in December. The first place district in each competing unit selects one of its members to accompany the oustanding cooperator from that winning district.

After 6 years on a gradually expanding basis, this awards program on May 1, 1953 went national, with all 48 states included.

One hundred winners enjoyed the fruits of their efforts as guests at the "Wigwam" last December. By having two men from practically every state, with California housed with Massachusetts and Pennsylvania with Washington, a very beneficial exchange of views was made possible.

Upon arrival at their vacation grounds the winners were furnished with complete outfits consisting of a sombrero, colorful shirts with appropriate tie, western belts and levis. Winners wore these clothes throughout their stay.

The schedule included visiting and discussing the green feeding program, a technique whereby the green feed is cut in the fields and brought to the feeding bins and mixed with other ingredients, so that the cattle do not have to forage for food in the pastures.

(Continued on page 209)

Below: Steak barbecue in Arizona.

Seed for Tomorrow's Grasslands

By C. S. GARRISON

TIMES are changing for the better when it comes to forage crops. Fifteen years ago there were few improved varieties. Certified seed was in small supply and often was priced too high for farmers to buy. Today, however, many farmers are obtaining bigger yields and better quality forage because they plant seed of superior varieties.

Recent experiments have shown that improved meadows and pastures can be made to produce as high a total of digestible nutrients per acre as high-yielding corn crops—and at less cost and less labor. Furthermore, acres planted to improved forage crops help to reverse the downward trend in soil productivity brought on by the intensive use of soil-depleting crops.

Increasingly, we appreciate the importance of our country's billion-acre grassland. The United States Department of Agriculture and state experiment stations have put more scientists to work breeding better varieties and studying seed production. State certifying agencies have expanded to handle a much greater volume of certified seed. Special certification standards have been developed to permit the production of seed in the most favorable seed-growing areas, frequently outside a variety's region of forage usage.

The job of increasing many forage crop seeds presents entirely different problems from those encountered with grain, fiber and oil crops. One difficulty is that grass and legume seed production is of secondary importance in areas where seed grass and legumes are grown extensively for livestock feed and soil improvement. Here, seed yields tend to be low and undependable. Thus, the seed must be grown elsewhere, where the climatic and other conditions are well suited for its production.

Because of these special problems, the maintenance of ample seed supplies for many forage crop varieties becomes a national consideration which calls for the needs and interests of farmers who grow the crops for forage to be coordinated with those of growers who produce the seed. It was to promote such coordination, and to assure adequate breeder and foundation seed, that the work under the National Foundation Seed Project was initiated in 1949.

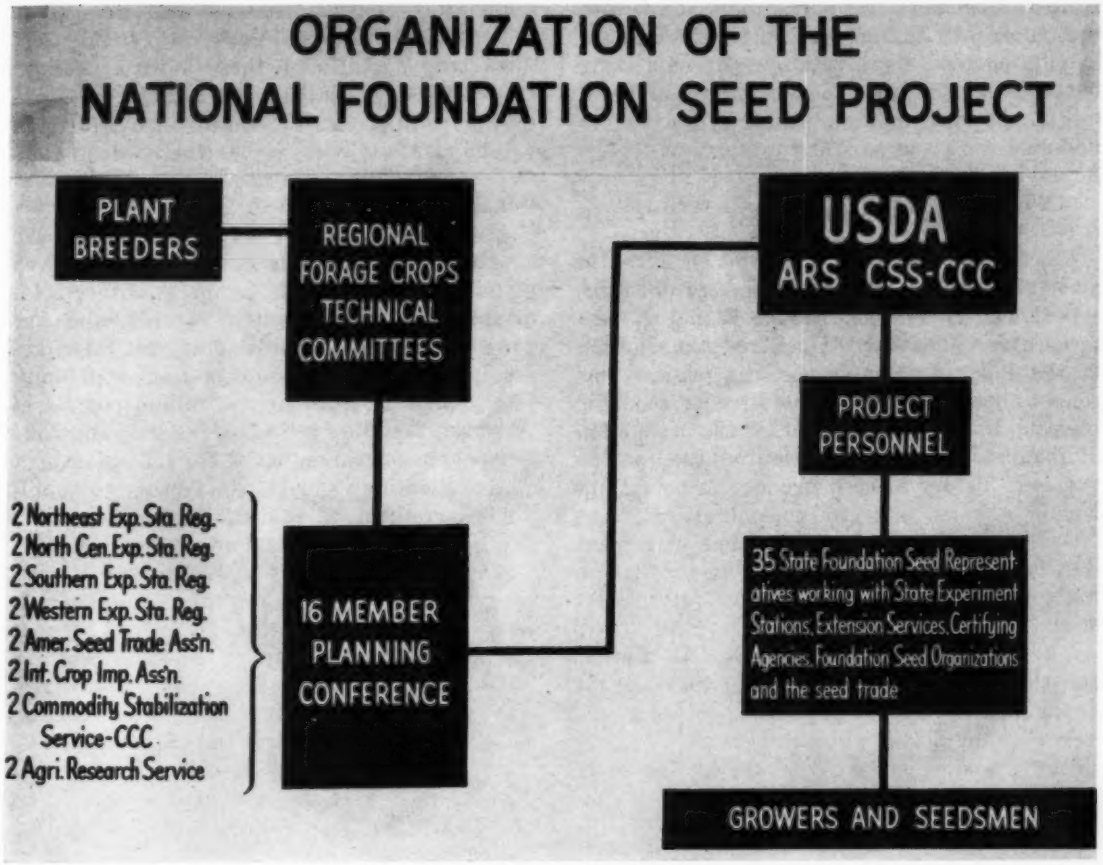
It is impossible by visual or rapid test to differentiate between the undesirable seed or plants and those of superior varieties. Thus, breeder seed must be fed continually into the seed-increase program. This is the only way to prevent the partial or complete loss of such attributes as disease resistance, winter hardiness, vigor, and other desirable characteristics, as a result of the introduction of impurities. Most species of forage crops are cross-pollinated; this offers one of the serious hazards in maintaining varietal purity in the seed-producing areas where other strains are being grown. Volunteer plants in a seed field can cause changes in the variety. And mechanical mixture occurring during seeding, harvesting, or cleaning is another place where varietal purity can be lost.

Thus, multiplying a handful of breeder seed of a new forage variety to millions of pounds of certified seed for farm use has its difficulties. Seed buildup in the past has broken down before volume production was reached. The breakdown often occurred in the foundation seed stage. This was either because of

Note.—The author is principal agriculturist, field crops research branch, Agricultural Research Service, U. S. Department of Agriculture, Beltsville, Md.

No. 2

This is the second of a series of articles to appear from time to time in explanation of the various phases of research being conducted by the Department of Agriculture on problems of soils and water conservation.


ORGANIZATION OF THE
NATIONAL FOUNDATION SEED PROJECT
PLANT BREEDERS
REGIONAL FORAGE CROPS TECHNICAL COMMITTEES
USDA
ARS CSS-CCC
PROJECT PERSONNEL
2 Northeast Exp. Sta. Reg.
2 North Cen. Exp. Sta. Reg.
2 Southern Exp. Sta. Reg.
2 Western Exp. Sta. Reg.
2 Amer. Seed Trade Ass'n.
2 Int. Crop Imp. Ass'n.
2 Commodity Stabilization Service-CCC
2 Agri. Research Service
16 MEMBER PLANNING CONFERENCE
35 State Foundation Seed Representatives working with State Experiment Stations, Extension Services, Certifying Agencies, Foundation Seed Organizations and the seed trade
GROWERS AND SEEDSMEN

failure to produce the amount of foundation seed needed to build up and maintain the desired production of registered and certified seed or because the demand for seed was so great that much of the first increase, instead of being put back into the seed buildup, was siphoned off and used mainly for hay, pastures, and soil improvement.

The Foundation Seed Project represents a new approach. It was shaped to meet the exacting needs of the forage-seed industry. Through the project there has been brought together the facilities of federal and state agencies and of the commercial seed trade in one organized effort to provide farmers with all the certified seed of new and superior strains of grasses and legumes they need.

The Foundation Seed Project is guided by a 16-man advisory committee called the Planning Conference. Its membership represents state experiment stations, the International Crop Improvement Association, the American Seed Trade Association, and the U. S. Department of Agriculture.

The Planning Conference, in turn, is advised by the Regional Forage Crops Technical Committees. There are four such committees in the United States, one in each of the four experiment station administrative regions. The states within each region have similar problems and environmental conditions.

These technical committees recommend to the Planning Conference the varieties to be included in the project, the regions of adaptation for forage and seed production, the estimated certified seed requirements, the areas for the production of foundation and registered seed of each of the varieties, and any other items of value in arriving at a rapid buildup of seed supplies.

All arrangements for seed production within each state are the responsibility of the state foundation seed representative. Appointed by the state agricultural experiment station director, he is responsible for initiating the foundation seed work and handling production details. Actual production is done by growers and seedsmen who are able to meet the state certification requirements.

Officials of the originating station agree to make all breeder and foundation seed of an accepted variety available to the Planning Conference for allocation. Upon recommendation of the Planning Conference, the project personnel allocates the available breeder seed for planting in states best suited for the production of foundation seed. Allocation is based on the previous history of seed production potentialities of a given area, on consideration of the wishes of the originating station and plant breeder, and on other factors which will assure maximum returns for each pound of breeder seed.

The state allotment of breeder seed goes to the state representative. With the aid of the experiment station group that makes stock seed releases, the latter allocates breeder seed to growers and seedsmen who are known to be capable of producing foundation seed. He arranges for production contracts of the foundation seed at a guaranteed price. All growers who receive breeder seed must agree to make available all foundation seed produced to the state representative and, through him, to the Project and the Planning Conference. All of it is assembled and stored in approved warehouses.

Upon the recommendation of the Planning Conference, the foundation seed is allocated to the states. It again goes to the state representative who, working through the local state setup, allocates it to growers and seedsmen for the production of registered or certified seed. Normally, registered seed is distributed by growers or seedsmen as planting stock for the production of certified seed. Certified seed is moved through the normal seed trade channels, since much of it is produced 1,500 miles or more from the consuming area.

Among the better known improved varieties included in the project are: alfalfa—Ranger, Buffalo, Narragansett, Vernal and Atlantic; red clover—Dollard, Kenland and Pennscott; sudangrass—Tift; and lespedeza—Climax. Certified seed supplies of these superior forage crop varieties are larger than at any time since they were introduced. Seed of several of them will be sufficient to meet planting needs in 1955 as a result of the cooperative work by the National Foundation Seed Project.

Altogether, the 1954 production of the five superior varieties of alfalfa is estimated at over 43 million pounds. This compares with a total of around 1.4 million pounds in 1949, when the project started. It is estimated that there are available 30 million pounds of Ranger, 8.5 million pounds of Buffalo; 2.2 million pounds of Atlantic; 2 million pounds of Vernal; and 750,000 pounds of Narragansett for 1955 plantings. These quantities should be adequate to supply about one-third of the alfalfa seed needs in the Northern and Central alfalfa regions.

The success of the Foundation Seed Project in building seed supplies of Vernal alfalfa shows how the time has been shortened between release of a new variety by an experiment station and availability of seed to the farmer. Vernal was approved by the Planning Conference in February 1953. Foundation seed fields were established in Utah and Washington 2 months later. At the end of 6 months there were 9,600 pounds of foundation Vernal. The foundation seed was allotted by the Planning Conference to the states interested in producing seed of this variety. As a result of this cooperative effort, 2 million pounds of certified seed was available following harvest in 1954—only 18 months after the initial plantings were made with breeder seed. In contrast, there were only 1,101,231 pounds of Ranger and 14,568 pounds of Atlantic, 6 and 8 years, respectively, after their release.

Certified Kenland red clover seed supplies for 1955 plantings total about 2.5 million pounds and Pennscott red clover 340,000 pounds. The increase of Dollard red clover will get started this year. It is a new variety, adapted to the Northern States in the Central Region.

The production of large crops of foundation seed the year of seeding is making possible the rapid buildup of certified red clover seed supplies. A 27-acre field, planted in the spring with 21 pounds of breeder Kenland seed, produced over 600 pounds of foundation seed per

acre 6 months later. The following year another seed crop of 650 pounds per acre was harvested making a total production of 34,910 pounds of foundation seed from the field. Thus, for every pound of breeder seed planted there was a return of 1,293 pounds of foundation seed.

Similar results have been obtained with Pennscott. The certified seed buildup of this variety will be rapid, as a large supply of foundation seed is available to registered and certified growers.

Considerable progress has been made toward solving the many problems involved in developing seed supplies of new varieties at great distances from where they will be used for forage plantings. Through the joint efforts of a number of public and private agencies, the National Foundation Seed Project has evolved a system to maintain adequate stock seed of improved small-seeded grass and legume varieties. Farmers in the various parts of the country now have available certified seed of the superior varieties developed by state and federal research workers. These seeds will be used to seed the improved grasslands of tomorrow.

Clem Rozansky makes the most practicable use of 90 acres of "sand-blow-and-drift" land. He expects to harvest his first annual crop of Christmas trees in 1956.

THE CROP GROWS UP.—Clem Rozanski, a tree farmer of Lowville, N. Y., is ready to collect his first income from 44,000 seedlings that he planted in 1944 under his program with the Lewis County Soil Conservation District. He's working with 90 acres that he took over after they became unproductive and were abandoned. He is proving that this sand-blow-and-drift-area, like many others in the upland east of Black River, can be made to yield a profitable crop of trees annually, even if it will not produce row crops, hay or pasture.

EVERYONE WINS

(Continued from page 205)

Many of the guests were interested observers of the irrigation system used and practiced on the Farms.

Also of interest were the conservation practices and harvesting operations. Visits were made to the various crops that were currently growing or being harvested, as well as to the cotton gin and the large acreage of citrus fruit under cultivation.

In addition to all this, inspection was made of the apprentice-farmer development project which was started to give young married couples an opportunity to develop an 80-acre plot of ground and to pay off their land and home mortgages over a period of time out of the proceeds.

Other features were swimming, horseback riding, a steak barbeque, and mountain and desert tours.

Back at their home bases, the vacationists talk up their experiences with enthusiasm, and usually in western costume—give impetus to new and better district accomplishments, and whet interest in the next year's competition.

A Place for Wildlife on the Farm

In Idaho game management is making rapid progress on private lands through the intelligent cooperation of state and federal agencies with soil conservation districts.

The author and his dog.

By ROBERT L. CASEBEER

MOST people think of the 53 million acres in Idaho as a vast area of public land in timber or livestock production. Actually, about a fourth (13 million acres) is in private farmlands. Much of this is in pasture or hay land, but about 5 million acres are used for cultivated crops. Idaho has a wide variety of game species and many of them depend in part, or entirely, on private lands for their existence. Sound statewide game management must, therefore include a program that specifically recognizes the role of private lands in the production and maintenance of game populations.

As in many other states, high farm prices and improved farming techniques have made profitable productive lands from many former submarginal lands. Farming is carried on closer to the fence row, and many odd corners have been converted to crop or pasture production. Such farming has encroached upon what had been considered native wildlife production areas, or at least changed them so that they now support other classes of wildlife. However, we cannot decry farming. It is here to stay, as a part of the economy of man, and wildlife must be geared to it.

Demands for wildlife have nearly doubled in Idaho over the last 10 years. This demand has been for game produced on private lands, as well as that from public lands. With the decline of natural habitat on private lands, there is a need for more effort on the part of game managers to coordinate wildlife production with private land management if these requests are to be met.

To obtain such coordination, wildlife people cannot restrict their activities to the control of game numbers. It is necessary that they concern themselves with game habitat, and with manipulation of the habitat, so as to provide for wildlife in private lands management.

Many of the commonly used soil and water conservation practices provide for the best wildlife habitat possible on cultivated lands as well as on range and woodlands. Too often, however, wildlife is given incidental consideration in the planning and application of these practices. The attitude repeatedly is: "Whatever is left is good enough for wildlife," or, "If it just happens to be good for wildlife, we are in favor of it."

If wildlife is to receive the consideration to which it is entitled some kind of positive action must be taken. It might be that a slight alteration in farm operations, a minor change in a farming technique, or the application of a specific land management practice in an area, would give wildlife the needed opportunity to produce in harmony with the economy and principal land use of the area.

Such proposals cannot be made until wildlife managers familiarize themselves with the land-management practices peculiar to the areas in which they are working. They must then acquaint landowners with the advantages of those

Note.—The author is habitat improvement leader, Idaho State Fish and Game Department, Boise, Idaho.

practices which aid wildlife and with ways and means of using them. Soils, altitudes, climates, water availability, and natural vegetative climaxes make farming practices so diverse that local problems must be dealt with individually on a community basis.

It is virtually impossible for a non-local organization, such as a State game management agency, to work individually with all the landowners within a community or even a sizable portion of them. To develop farmer interest in local programs of wildlife habitat improvement, a game management agency needs some channel through which it can work with groups of landowners.

Wildlife agencies of other states have worked with soil conservation districts in promoting tree and shrub planting on private lands as a program of habitat improvement for upland game birds. But what might be the possibilities for increasing the scope of cooperation to include the management of land and water for all classes of game? If it could be done it might furnish a way whereby we can give more specific attention to the role of private lands in game management. Therefore, the scope of the Idaho soil conservation district was examined to see just how it could cooperate in wildlife conservation, and what advantages it could offer an agency such as the Idaho Fish and Game Department for the management of game on private lands.

It was found that the soil conservation district is the only organization of its kind established for the purpose of helping farmers and ranchers manage their land and water, and that each district is authorized to accept assistance from any federal, state, municipal or private agency or organization on matters pertaining to land and water management. In this capacity a district may request assistance from a state fish and game department.

In other words, a game management agency might be able to assist a soil conservation district in fitting wildlife conservation into the district's overall conservation program. In such a cooperative program the agency's responsibilities need not be relinquished in any way.

With these facts understood, it was decided to work out some type of practical understanding under which the Idaho Fish and Game Department might be able to work through this

A planting of volga wild rye is checked by Charles Haynes, game biologist. This plant does not spread from seed. It provides good bird feed and makes excellent nesting cover.

Farm pond development is one phase of air to landowner and wildlife. This pond has been fenced against trampling by livestock. Shrubs provide cover for birds.

organized group to facilitate wildlife management on private lands, and which would provide some assurance that the land and water conservation program might give more consideration and benefit to wildlife.

Two years ago a proposal for cooperative programs was discussed with the supervisors of two Idaho districts, Canyon and Portneuf. Upon adoption of the cooperative program the supervisors asked that the programs be carried out under a formal memorandum of understanding. These districts then became testing grounds for the new program. Later, after minor revisions had been made, copies of the program and memorandum of understanding were submitted to 15 more Idaho districts for study. Since then 12 more districts—Boundary, Kootenai, Clearwater, Owyhee, Gooding, Lincoln, North Side, Mud Lake, East Side. North Bingham, South Bingham and Bear Lake—have made formal agreements with the Fish and Game Department. Agreements with the West Side, Franklin and other soil conservation districts are pending.

This memorandum of understanding provides for broad cooperative working arrangements between the Idaho State Fish and Game Department and Soil Conservation Districts. It does not spell out specifications for individual work programs. Once it is completed any specific job can be put into operation. The unique feature of the program under this type of agreement is that it opens the door for cooperative work on all phases of wildlife management on private lands within a district and under sponsorship of the district. Besides tree planting, important phases that may be included are farm fish pond development, stream improvement for game fish, wet land development and management for furbearers, range improvement and management for dual use by livestock and big game, development of farmer-sportsmen programs, and cooperative promotion of special conservation events or projects.

To illustrate how a work program may function in a soil conservation district, let's follow through with one Idaho program, such as tree planting:

Each district is notified of the area in which trees can be planted to be of benefit to birds; that within that area the department will furnish the trees and plant them for any project requiring over 300 trees; and that the plantings may be for windbreaks, snow fences, certain

types of woodlots or odd corner plantings. It is also explained that each cooperator must sign an individual agreement with the Fish and Game Department giving assurance that he will do the necessary ground work and maintenance, and give the plantings proper protection. He also agrees to allow a reasonable amount of hunting by sportsmen who ask permission. In turn the department agrees to post all cooperators' lands with "hunting by permission" signs.

Farmers who want trees under this program submit their requests for tree planting assistance to the districts' supervisors. These requests are turned over to the habitat improvement biologist of the Fish and Game Department who contacts the cooperator and works out the planting design and specifications. Usually the Soil Conservation Service technician who assists the district, accompanies the biologist in this initial contact. This provides for the necessary coordination between wildlife and soil and water conservation planning. For requests which do not meet the requirements of the Fish and Game Department, the technician will usually assist the cooperator in designing the planting and inform him of other sources where planting stock may be obtained.

A similiar procedure is used for Fish and Game Department assistance in farm pond development. A district is informed of the type of farm pond permits available and under what conditions fish stock might be furnished. Requests for assistance in designing and building farm ponds come to the district office. The information is turned over to a department fisheries biologist who inspects the proposed site and makes his recommendations. If assistance in building or stocking can be provided, the arrangements are worked out. Here again a high degree of coordination is maintained between the wildlife and soil and water conservation planning activities.

The important thing is that a department man and SCS technician work together on the inspection and recommendations before any project work is started. This is necessary so that all wildlife values are included in the overall original planning and not added as an afterthought. Those afterthoughts are too often disappointing in their results.

Of the many features of the memorandum of understanding, the one which has done most to develop friendly and cooperative relations, is the provision that the supervisors will call one meeting each year for the purpose of reviewing the accomplishments of wildlife conservation in the district during the past year, and to make a definite operations plan for the coming year. It also provides that the supervisors will invite the participation of representatives of local sportsmen's organizations and the Fish and Game Department. These meetings keep district cooperators and personnel posted on district activities and they bring farmers and sportsmen together on a community level for a common cause. Thus far meetings have been held by all districts. Better relationships are developing.

After two years of this program, these are some of the things that have actually been accomplished in Idaho:

1. During 1953, two districts cooperated. In these two districts over 16,000 trees were planted on lands of 21 cooperators, involving approximately 3,600 acres which were opened to "hunting by permission."

2. In 1954, seven districts were cooperating. About 90,000 trees were planted on lands of 95 cooperators, adding nearly 20,000 acres to "hunting by permission."

Les Wyman, farm owner between Sandpoint and Bonner's Ferry, built a pond and stocked it with trout. This is a sample of the recreation he finds in his backyard.

3. A sportsmen's organization purchased a tree planter and gave it to the local soil conservation district for any tree and shrub planting in that district.

4. Requests have been received for assistance in designing farm ponds and department biologists and Soil Conservation Service engineers are working together in answering these requests.

5. Efforts were initiated within one district whereby the department might cooperate with an irrigation company in the proper construction of a new reservoir so that permanent public fishing would be insured.

6. The department and one district cooperated in a demonstration of marsh development. Dragline operations were compared to dynamiting channels for improving production and harvest of muskrats and waterfowl.

7. One district is completing a 28-minute sound and color motion picture on conservation in Idaho. The department is assisting in planning, filming and finishing this film, as well as furnishing some of the materials.

8. The State Association of Soil Conservation Districts stimulated the appointment of a statewide roadside improvement advisory board to the State Highway Department. Because of its interest in wildlife, the association recommended and obtained the appointment of a department member on that board.

9. Annual wildlife meetings have been held in each district. Sportsmen attended and took an active part. Problems were discussed and feature speakers and films were presented. Annual wildlife work plans were made in each district.

Plans are now being made for even more expanded programs within the districts this coming year and for accommodating more districts in the program. There are at present 41 districts in Idaho. Each one of them has wildlife and wildlife problems. At their request, the Idaho Fish and Game Department will cooperate in every way possible.

How does the U. S. Department of Agriculture Soil Conservation Service fit into this picture? First of all, its personnel are highly skilled soil and water management technicians who have been asked by each district to give specialized assistance. An SCS work unit office has been established within each district. The SCS technicians are in continuous contact with most landowners of a district, with the land use practices which are in use or recommended for that district, and they are responsible for designing conservation farm plans.

This year a 2-day training school was held for all SCS personnel in Idaho. Fish and Game Department technicians reviewed management policies and their application to private lands. Techniques for the planning and application of wildlife practices on private lands were discussed and observed in the field. With this basic training in the management of land and water for wildlife, this group of men has been an added help to the department in the cooperative district wildlife programs.

In summary, an improved approach is needed to carry wildlife conservation to the individual landowner. A program of incorporating wildlife in the overall conservation practices recommended and administered by soil conservation districts is one approach to the problem. It is not the complete answer to wildlife management on private lands, but, in Idaho it sure does help.

SPECIAL ISSUE ON CONSERVATION

Soil and water conservation are being featured in the March issue of the *Extension Service Review*, monthly periodical of the Federal Extension Service. Articles written by USDA Soil Conservation Service men are: "Is the Timelag too Long Before You Relay the Results of Research," by Robert M. Salter, chief, soil and water conservation research branch; and "Farm Planning Trials Conducted by Soil Conservation Service and Extension Service in Four States," by A. M. Hedge, chief, farm and ranch planning branch. W. R. Tascher, Extension soil conservationist, wrote "The Land and People—Key Factors in Farm and Home Planning and Development." Dr. E. J. Neiderfrank, Extension rural sociologist, contributed "The Human Side of Conservation." Also from the USDA is one from Farmers Home Administration, entitled "Credit for Soil and Water Conservation." Many other interesting accounts of Soil and water conservation activities are told by State and county Extension workers.

If you do not get the Review in your office, you will find a copy in your nearest Extension office or library.

How to Use Research

By R. Y. BAILEY

RESEARCH is our most dependable source of information. When research information is available, it should by all means be used. Sometimes it will be necessary to adapt research information to conditions on the farm. Sometimes it will be necessary to do some outside reading to keep abreast of available research information.

I know that in farm planning one does not have research information that will fit every situation but there is always something that can be adapted and applied. A technician may, for example, help a farmer decide what kind of vegetation he will plant on certain land. One will not find direct research information that says, "Plant sericea, alfalfa, kudzu, fescue and ladino clover, coastal bermudagrass, Dallis grass and white clover, Pensacola Bahia grass, reseeding crimson clover, or any other specific type of vegetation on field 6." But, it would be an error to conclude that research has nothing to supply.

Let's take a look. Chances are that there have been studies made of culture requirements —such matters as soil preparation; time, rates, and dates of seeding; liming; and fertilizing of each type of vegetation. For example, Richardson studied dates of seeding sericea in cooperative work at Auburn, Ala. Wouldn't a farmer be better off to plant sericea at the most favorable dates indicated by this research than to use some other date?

The Alabama Agricultural Experiment Station pioneered in methods and rates of seeding sericea. The instructions for planting sericea, which the Soil Conservation Service has used with uniform success since 1937, were based on results of seeding studies made at this station.

All of us in the Soil Conservation Service are willing to ask the experiment stations to write the ticket for fertilizing the various crops. Sometimes it may be necessary to adapt results from studies with one crop to some other similar crop, but if their recommendations are followed the crop will grow. That is what we want.

Research in the field of soil and water conservation is not so old as that in some other fields, but there is much useful information available. One need not rely on personal opinion to point out to farmers what erosion losses mean in crop yields. Uhland found, for example, that as the depth of two important Iowa soils declined from around 12 inches to 1 or 2 inches corn yields were cut in half.

Cotton yields on Cecil soil at Watkinsville, Ga., declined in about the same way as soil depth decreased from 8 to 2 inches. Improved rotations increased the yield on the eroded, shallow soil but did not equalize the yields on soils 8 inches deep and 2 inches deep.

I know the research programs at our Southern stations have not included as much work with perennial grass in crop rotations as we would like. Results are neither as plentiful nor specific as they might be. We are, however, not entirely without research guidance in the use of perennial grasses in rotations. Some farmers have been helped to plan and apply rotations based on either tall fescue or Pensacola Bahia grass. These were copied pretty much from rotations in cooperative studies at Watkinsville and Tifton.

That brings me to another of the facts of life. Research will never be able to study every problem in every locality. Take, for instance, the case of rotations based on perennial grass. Research should, and, I am sure, will give us the necessary basic information about such rotations. But we must make the local adaptations through field trials. Field trials, as we now know them, are not investigational in nature. They are *always* based on the results of research work. Field trials are used for the application, adaptation, and testing of research under local farm conditions.

We once considered field trials as investigations. We required that other agricultural agencies be brought into their planning. This system was too complex to be practical. We spent too much time consulting people, largely to comply with the required procedure.

Note.—The author is research liason representative, Soil Conservation Service, Auburn, Ala.

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Under our present concept, field trials are tools to be used in application of research results under farm conditions. Responsibility for such field trials rests on the Soil Conservation Service. We may seek needed help from research and extension people in planning and in evaluating the results. We want to do so on a sensible, working basis that will help us do a better job. We are not required to follow any fixed step-by-step procedure.

Sometimes we have local problems on which research is neither in progress nor in prospect. Where these problems limit the effectiveness of the field program, we can plan and conduct field tests. And in this situation, the tests do become investigational in nature. We need the help of other agricultural agencies in planning them and in evaluating the results. Here again, no fixed, step-by-step procedure is required.

The general policy of all state conservationists with whom I work appears to be to use both field trials and field tests judiciously. They will approve the use of either only when they can see that there is a definite need and an opportunity to strengthen the field program. In my opinion, this is as it should be.

Through the medium of research needs reports that are formulated in each state office, in the office of the research liaison representative, and in the Washington office of the Soil Conservation Service, we are telling the Agricultural Research Service what we believe our research needs are. I am confident that this is going to have a good influence on the entire research program in soil and water conservation. This procedure is already showing signs of strongly influencing the research planning of several state agricultural experiment stations.

Another important responsibility of people in research agencies is to make their results available to technicians in the field. Steps are being taken to get more information channeled from research agencies to the users.

With a soil and water conservation research program that is tailored to fit our needs, and a steady flow of useful information from research agencies to field workers, we may expect an even better program out on the farms in soil conservation districts.

LAND PRIMEVAL

(Continued from page 201)

This refuge is a large area of grassland with associated wildlife that comes near to simulating primeval conditions. On part of it there is evidence that some of the plant cover was damaged in the past, but now there are obvious signs that the present care and management is being rewarded.

Being able to see this area helps give people a true vision of the power and potentiality of land when it is prime and flourishing. No one can remember when our land was in its virgin bloom. We need but look at an area like this to have something on which to sharpen judgments and refine our ideas about land. We have tended to underestimate the high goal of nature. There are too many people who still believe that buffalograss is the best kind of grass for this area. Little bluestem and sideoats grama should play the ranking role on this land; and when they are grazed out and buffalograss takes over, it is a sign that tragedy has set in. It means that the land has lost some of its power to produce forage and litter. Plants advertise the condition of the land and those who use them should know which ones indicate danger and which ones signify healthy conditions so they can improve their land management.

It is necessary to be able to recognize the early and subtle signs of range deterioration without having to wait for the more tragic signals such as weeds, mesquite and gullies to warn us of what is happening to good land, soil and grass. Our prime responsibility is to disseminate to those who need it the useful information that has been learned through research and ranch experience. Our job, then, is to help multiply the ranks of active conservation farmers and ranchmen.

FORESTRY AWARD.—Two students of the University of Washington College of Forestry have been presented the Paul H. Johns, Jr. Memorial Award. This award, consisting of $200 each to the outstanding junior and senior of the preceding year's forestry class, was established in 1943 by the Tacoma Lumbermen's Club. This year's recipients were Robert H. Donnelly and Marvin Jack Burks.

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